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The Potential of Date Palm Kernel Oil

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ABSTRACT

Currently, many oil sources mainly from plants that produce oil have been identified; however the potential of some of them as oil sources has not been assessed. Date palm (Phoenix dactylifera) is considered to be one of the oldest cultivatable crops. It has been the old food and chief source of wealth in the irrigable desert from ancient times. The date palm kernels (DPK) considered a waste product of many date processing plants producing pitted dates, date syrup and date confectionery. Direct consumption of dates is also considered as a source of DPK. This study was carried out on DPK to clarify their proximate characteristics of the extracted oil. A laboratory scale for extraction of DPK oil was conducted using two types of DPK which were Deglect Noor oil (DPKDNO) and Moshkan (DPKMO). The extracted oil was then analyzed for color, refractive index, iodine value (IV), Saponification value (SV), unsaponifiable matters and total phenolic content as well as some other quality parameters such as acid value (AV) & free fatty acid (FFA) content, and peroxide value (PV). Generally the DPK of Deglect Noor found to have high oil content (9.67%) compared to Moshkan which has 7.30% oil. The color of crude oil was found to be 5.6R, 25Y and 0.2 blue (Brownish) for DPKDNO while 2.3R and 36Y (Yellowish) for DPKMO using Lovibond tintometer. IV and SV for DPKDNO & DPKMO were found to be 51.6 & 54.8 and 216.3 & 207.8, respectively. The unsaponifiable matter in both oils are almost same which ranged between 0.8 - 1.4%. Total phenolic content in both oils was also in the same range of 0.96 - 0.98 mg/ml Gallic acid equivalent. The oil compositions that been tested including fatty acid composition using GC-MS showed that the oleic acid is the main unsaturated fatty acid in both varieties (38.5 & 41.6%) while the main saturated fatty acid is lauric acid which was found to be 23.2 and 18.5% for DPKDNO and DPKMO, respectively. Other types of fatty acids such as palmitic, myristic, stearic and linoleic were also found in both varieties. Thus, the initiation study of this project may generate a new source of special oil which could be able to support the global demands of Halal source of specialty oil as cosmetic ingredient since it had been proven that it has antiwrinkle effect and is therefore of interest in antiaging skin care products.

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